

## PATENT COOPERATION TREATY

PCT

10/532136

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference  CFO17651WO	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No.  PCT/JP 03/13604	International filing date (day/month/year)  24/10/2003	(Earliest) Priority Date (day/month/year)  24/10/2002
Applicant  CANON KABUSHIKI KAISHA		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 05 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2.  Certain claims were found unsearchable (See Box I).

3.  Unity of invention is lacking (see Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

1

None of the figures.

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International application No.

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## Box III. TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A polyhydroxyalkanoate copolymer comprises one kind of unit of

-[OCH((CH<sub>2</sub>)<sub>x</sub>-SOC<sub>6</sub>H<sub>5</sub>R)CH<sub>2</sub>CO]- (n=1-7) (1)

(wherein R is any one of H, halogen, CN, NO<sub>2</sub>, COOR', SO<sub>2</sub>R" (R' is any one of H, Na, K, CH<sub>3</sub> and C<sub>2</sub>H<sub>5</sub>; R" is any one of OH, ONa, OK, halogen, OCH<sub>3</sub> and OC<sub>2</sub>H<sub>5</sub>), CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, C<sub>3</sub>H<sub>7</sub>, (CH<sub>3</sub>)<sub>2</sub>-CH and (CH<sub>3</sub>)<sub>3</sub>-C) and

-[OCH((CH<sub>2</sub>)<sub>x</sub>-SO<sub>2</sub>C<sub>6</sub>H<sub>5</sub>R)CH<sub>2</sub>CO]- (x=1-7) (2)

(wherein R is any one of H, halogen, CN, NO<sub>2</sub>, COOR', SO<sub>2</sub>R" (R' is any one of H, Na, K, CH<sub>3</sub> and C<sub>2</sub>H<sub>5</sub>; R" is any one of OH, ONa, OK, halogen, OCH<sub>3</sub> and OC<sub>2</sub>H<sub>5</sub>), CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, C<sub>3</sub>H<sub>7</sub>, (CH<sub>3</sub>)<sub>2</sub>-CH and (CH<sub>3</sub>)<sub>3</sub>-C)

(CH<sub>3</sub>)<sub>2</sub>-CH and (CH<sub>3</sub>)<sub>3</sub>-C)

and at least one unit of chemical formulae (3) to (6):

-[OCH((CH<sub>2</sub>)<sub>m</sub>-Rz)CH<sub>2</sub>CO]- (m=1-8) (3)

(wherein Rz comprises a residue having either phenyl structure or a thiienyl structure).

-[OCH((CH<sub>2</sub>)<sub>k</sub>-C<sub>6</sub>H<sub>11</sub>Ra)CH<sub>2</sub>CO]- (k=0-7) (4)

(wherein R<sub>a</sub> is any one of H, CN, NO<sub>2</sub>, halogen, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, C<sub>3</sub>H<sub>7</sub>, CF<sub>3</sub>, C<sub>2</sub>F<sub>5</sub> and C<sub>3</sub>F<sub>7</sub>)

-[OCH((CH<sub>2</sub>)<sub>n</sub>-CH=CH<sub>2</sub>)CH<sub>2</sub>CO]- (n=1-8) (5), and

-[OCH((CH<sub>2</sub>)<sub>n</sub>-COOR<sub>b</sub>)CH<sub>2</sub>CO]- (n=1-8) (6)

(wherein R<sub>b</sub> is any one of H, Na and K)

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International Application No

PCT/03/13604

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08G63/688 C12P7/62 G03G9/087 C08L67/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08G C12P G03G C08L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 236 755 A (CANON KK) 4 September 2002 (2002-09-04) page 5, line 40 - line 44 paragraphs [0052]-[0060] paragraphs [0067]-[0074]; claims; examples ---	1-36
A	TAKAGI Y ET AL: "BIOSYNTHESIS OF POLYHYDROXYALKANOATE WITH A THIOPHENOXY SIDE GROUP OBTAINED FROM PSEUDOMONAS PUTIDA" MACROMOLECULES, AMERICAN CHEMICAL SOCIETY, EASTON, PA, US, vol. 32, no. 25, 1999, pages 8315-8318, XP001113020 ISSN: 0024-9297 page 8315, right-hand column ---	1-36 -/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

13 January 2004

19.03.04

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International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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P,X	EP 1 253 161 A (CANON KK) 30 October 2002 (2002-10-30) paragraphs [0020]-[0033] examples ---	1,23-26
P,X	EP 1 340 778 A (CANON KK) 3 September 2003 (2003-09-03) paragraphs [0022]-[0031]; example 10 ---	1,5, 23-26
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A	US 5 667 927 A (KUBOTA HIDEYUKI ET AL) 16 September 1997 (1997-09-16) cited in the application the whole document ---	32-36
A	DATABASE WPI Section Ch, Week 199232 Derwent Publications Ltd., London, GB; Class A23, AN 1992-263777 XP002266760 & JP 04 179967 A (CANON KK), 26 June 1992 (1992-06-26) abstract -----	32-36

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

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